

Proposed claims  
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MCW  
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Serial No.: 10/591,530

IN THE CLAIMS:

Please amend the claims as follows:

1. (Currently amended): A method for differentiating mesenchymal stem cells into cells that produce steroid hormone-producing ~~enzymes~~<sup>enzymes</sup>, comprising stimulating the mesenchymal stem cells by a transcriptional~~steroidogenic~~ factor 1~~1~~ (SF-1), in the presence of cAMP, wherein the steroid hormones producing~~ed~~ enzymes are selected from the group consisting of p450scc, p450c17, HSD3b1, StAR, 3 $\beta$ -HSD, p450 c21, p450 11b1, and HSD3b6~~progestin~~, androgen, estrogen, glucocorticoid, and mineralcorticoid.
2. (Cancelled)
3. (Previously presented): The method of claim 1, wherein the mesenchymal stem cells are derived from bone marrow.
4. (Previously presented): The method of claim 3, wherein the mesenchymal cells are derived from human.
5. (Previously presented): The method of claim 1 wherein the stimulating by SF-1 in the presence of cAMP is implemented *in vitro*.
6. (Currently amended): A method for producing steroid hormone-producing cells, comprising transplanting mesenchymal stem cells into a mammalian reproductive organ, wherein the mesenchymal stem cells ~~contact extracellular components of the reproductive organ to induce~~<sup>are induced to express</sup> SF-1 in the stem cells and thereby differentiate into steroid hormone p450scc-producing cells.
7. (Cancelled)

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8. (Currently amended): The method of claim 5 further comprising culturing the cells that produce steroid hormone-producing enzymeseells and recovering steroid hormone from the culture medium.

9-10. (Cancelled)

11. (Currently amended) The method of claim 1 wherein the hormone[[s]] produced are is progesterone, androstenedione, progestin or androgen.

12. (New): A method for differentiating mesenchymal stem cells into steroid hormone-producing cells, comprising stimulating the mesenchymal stem cells by a steroidogenic factor 1 (SF-1) in the presence of cAMP, wherein said hormone is selected from the group consisting of progesterone, androgen, and androstendione.